

Shiga-toxin Producing *Escherichia coli* (STEC)

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What are STEC?

Escherichia coli are germs that normally live in the bowel of people and animals. Most types of this germ are harmless, but some kinds cause disease by making a toxin (poison) called Shiga toxin. Germs that make these toxins are called “Shiga toxin-producing” *E. coli*, or STEC. The most commonly identified STEC in the United States is *E. coli* O157:H7.

What are the symptoms of an STEC infection?

The most common symptoms are severe stomach cramps and diarrhea. Some people vomit or have a fever, but these are less common. Sometimes the diarrhea turns bloody after 3 or 4 days. These symptoms usually go away by themselves after 5 to 7 days. In a small number of people, STEC can cause a rare, but serious and sometimes life-threatening, problem called hemolytic uremic syndrome (HUS).

What is HUS?

HUS is a disease that affects the kidneys and the blood clotting system. It starts about a week after the diarrhea begins and affects children more than adults. In bad cases, dialysis may be needed for a while to do the kidney’s work. Some people also develop a bleeding problem and low blood count (anemia). Most people who get HUS will regain their health with no remaining blood or kidney problems.

Where are STEC found?

These bacteria live in the gut of healthy cattle and can get on the meat when cattle are slaughtered. The germs are killed when the meat is thoroughly cooked. The most common food source is ground beef (hamburger), because the grinding spreads the germs throughout the meat. These germs have also been found in raw milk, roast beef, apple cider, salami, and sometimes on vegetables contaminated by cow manure.

How is it spread?

STEC must be swallowed to cause infection. This can happen if you eat or drink something that contains these germs that is not properly cooked or pasteurized. The germs can also be spread from person to person if someone who is infected does not thoroughly wash his or her hands with soap or water before preparing food for others. Spreading *E. coli* germs this way is more common in families and day care centers than in schools and restaurants.

How are STEC infections diagnosed?

Infection with this germ can only be diagnosed by testing a stool sample. The test is not a routine test, so if your doctor or nurse thinks you may have STEC, she or he must ask the lab to test for it.

How is the disease treated?

There is no treatment for STEC infection. Antibiotics do not help and may even be harmful by causing the release of more toxin. Do not try to stop the diarrhea, which should go away by itself after a few days, as this may keep the germs in the bowel longer. Make sure to drink plenty of liquids to replace the



fluids being lost. For severe cases of HUS, dialysis or blood transfusions are sometimes used until the patient's kidneys and blood return to normal.

How can you prevent this infection?

The most important things to remember are that these germs can only make you sick if you swallow them, and that the germs are killed by thoroughly cooking high risk foods and removed by thoroughly washing your hands with soap and water. Follow the tips below; if you make them your habits, you can prevent STEC infections—as well as other diseases:

- Avoid unpasteurized dairy products (such as raw milk or non-aged cheese made from raw milk) and unpasteurized juices (like fresh apple cider).
- Always cook meat thoroughly. It is best to use a thermometer, as color is not a very reliable indicator of “doneness”. Ground beef should be cooked until the center is 160 ° F.
- Do not put cooked meat or other prepared food on a dish or cutting board that held raw meat.
- Avoid swallowing water when swimming or playing in lakes, ponds, streams, and swimming pools.
- Always wash your hands with soap and water after going to the bathroom or changing a diaper. Wash them again before touching or eating food. You should also always wash your hands after contact with animals or the environment where they live.

Are there any restrictions for people with STEC?

Yes. Because STEC is a germ that can easily be spread to other people and because contaminated foods need to be identified and removed from use, health care providers are required by law to report cases of STEC to the local board of health.

In order to protect the public, workers at food-related businesses who have STEC must stay out of work until they don't have diarrhea and **lab tests on two different stool samples** show that there are no STEC in their stools. Workers in food-related businesses who have diarrhea and live with someone who has STEC must also show that they do not have the germs in their stool. Food-related businesses include restaurants, sandwich shops, hospital kitchens, supermarkets, dairy or food-processing plants. This regulation also includes workers in schools, residential programs, day-care and health care facilities, who feed, give mouth care or dispense medications to clients.

Where can you get more information?

- Your doctor, nurse or health care clinic
- The Centers for Disease Control and Prevention (CDC) website at: <http://www.cdc.gov/ecoli/>
- Your local board of health (listed in the telephone directory under “government”)
- The Massachusetts Department of Public Health (MDPH), Division of Epidemiology and Immunization at (617) 983-6800 or toll-free at (888) 658-2850.

